ance, by their different effects on the nervous extremities distributed over the mucous coat. In the first case, the ice cold liquids paralyze as it were the nervous filaments, and the impression received by them is not communicated to the cerebro-spinal centre. In the last, the constriction is less considerable, and the impression on the nervous organization is transmitted to the whole system. Thus, the disorder, which, in the former case, was confined to the stomach, is now by the action induced, a general one.

As to the third division, viz. the effects on the circulating system, M. Guerard adduces several instances of hæmoptysis, caused by drinking cold water, when the body was heated, and in a state of profuse perspiration. The following also illustrates the medical jurisprudence of former days. The dauphin, son of Francis the First, whilst heated and perspiring from playing tennis, drank a glass of cold water. He died, in consequence, of pleurisy, which supervened. Soon the cry of poisoning was heard throughout France. The count Montecuculi, cup-bearer to the prince, was put to the torture, and in his agonies confessed that he had added arsenic to the water. He was drawn asunder by four horses.

Pneumonia is a frequent consequence of imprudence in the use of cold water.

In conclusion, the author recapitulates the conditions which induce these grave accidents; the previous heating of the body; an empty condition of the stomach; the great quantity of drink swallowed at a draught; and lastly, and of less importance than any of the former, the temperature of the fluid. In addition to the facts already mentioned, he urges the circumstance that ice never causes such fatal terminations.

The emptiness of the stomach must accelerate the result, since the liquid comes in direct contact with the mucous coat. So also, if a large quantity be swallowed, it reaches a large portion of the surface. Ice, on the contrary, as it melts slowly, can only produce a limited effect.—*Bulletin of the Royal Academy of Medicine, sitting of* January 25, 1842. T. R. B.

80. *Detection of Arsenic acid by M. Elsner.*—(Translated from the Annales Des Mines, by Professor Griscom.) It is well known that M. Runger discovers free sulphuric acid by covering a porcelain desk with a solution of one part of sugar and thirty parts of water, heating the dish by exposure to steam till it acquires the same heat, and then dropping on it the liquid supposed to contain the free sulphuric acid. A black colour indicates the presence of this acid, because the greater number of other free acids do not decompose the sugar in this manner.

I have found that arsenic acid acts in a peculiar manner, producing on the porcelain coated with sugar, a beautiful scarlet red colour. The reaction is sensible with a liquid containing only $\frac{1}{1000}$ of arsenic. The action of arsenic acid produces on the sugar, ulmic acid, which brings the former acid to an inferior degree of oxydation.—*Journal of the Franklin Institute*, February, 1842. T. R. B.

81. *On spots in glass resembling those of Marsh, produced by a reducing flame.*—Professor Louyet, at a previous meeting, stated that he had obtained by means of a current of hydrogen gas, metallic spots in certain glass vessels, greatly resembling those produced by the apparatus of Marsh, from arsenic. He was, however, unable to explain the cause, since on analysis no arsenic could be detected in the glass. By subsequent experiments, he was satisfied that they were owing to the presence of lead in the glass itself, and he ascertained this in the following manner. Three grammes of the glass powdered, were melted with four times their weight of carbonate of potash, in a platina crucible. The substance obtained was then treated with boiling diluted nitric acid and the liquid evaporated to dryness. This was again dissolved in boiling water, and filtered anew, in order to separate a portion of silica. On adding an excess of potash in solution, a gelatinous precipitate was obtained, which was collected on a filter, washed and then dissolved in nitric acid. Liquid bichromate of potash caused

a yellow precipitate when added to this solution; a plate of zinc, a metallic crystallization, and sulphuret of ammonia, a black precipitate.

The remainder of the acid solution was submitted to a stream of sulphuretted hydrogen: and the black precipitate thus obtained, after being washed, and properly dried, was mixed with a portion of black flux and reduced. A metallic substance was the result which proved to be pure lead.—*Bulletin of the Royal Academy of Sciences of Brussels*, vol. 8, May, 1841. T. R. B.

82. *Do Metallic poisons when mixed with cultivated land, enter into the composition of the vegetables produced?*—We mentioned in the last number, that this had been proposed as a prize question by the Academy. Five memoirs were received in reply, three of which came too late. To the others, the Academy awarded silver medals.

The first (written by M. Louyet, Professor of Chemistry in the Central School of Commerce and Industry at Brussels) stated that the author had impregnated a portion of soil with arsenic in three different proportions—also a part with arsenite of potash—with tartrate of potash and antimony—with sulphate of iron—sulphate of copper—sulphate of zinc—proto-nitrate of mercury—and corrosive sublimate. In these, barley, rye, and buckwheat were sown. When the quantity of arsenic in a square of 64 feet of ground, amounted to 1280 grains, germination was checked, but when the quantity in the same space was more than 256 grains, neither it nor the full growth of the plants was at all retarded. The roots, leaves, and seeds of the cereals thus produced, were macerated in a gentle heat for two or three days with a solution of caustic potash. This after being concentrated and neutralized with sulphuric acid, was introduced into the apparatus of Marsh. No indication of arsenic was perceived. The author then examined a portion of the above soil, and found in it, a sensible quantity of arsenious acid in a soluble state. It would thus seem, that although the cereals grow in a soil impregnated with arsenic, yet their roots do not imbibe an appreciable portion of it. Mr. Martens, the reporter on this memoir, however regrets that the author did not employ the method of carbonization with nitric acid, as much the most certain for detecting minute portions of arsenic.

When the grains, which had been checked in their growth by the too strongly impregnated soil, were submitted to analysis, they were found to contain a sensible quantity of arsenious acid, thus proving that the absorption of the poison had checked vegetation.

No poison could be detected in plants grown on the soil containing arsenite of potash, but the author ascertained that this salt was almost entirely insoluble, having been mainly converted into an arsenite of lime.

A similar result was obtained with plants from the soil containing tartar emetic. This salt had also become insoluble.

Iron in notable quantities was detected in every part of the plant, grown on the soil impregnated with sulphate of iron, thus apparently proving that non-poisonous substances are more readily absorbed than their opposites. So also with plants grown on the soil containing copper. That metal was detected in the leaves, twigs and seeds, while on the contrary, no trace of it could be discovered in cereals growing on soil not impregnated.

In plants from the ground containing sulphate of zinc, proto-nitrate of mercury and corrosive sublimate, no trace of these substances could be discovered, nor did they appear to have influenced or retarded their growth. When, however, plants were watered with a strong solution of corrosive sublimate, they died in a few days, and on analysis, the poison was detected.

The conclusion of the author from these experiments is, that a soil containing a notable proportion of metallic poison will not check or impede the growth and maturity of cereals.

The second memoir was written by M. Verver, of the University of Groningen. He also had divided off a garden plot into various squares and impregnated the earth in each with the respective poisons. The results with arsenic were